

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-032288

(43)Date of publication of application : 09.02.1993

(51)Int.Cl.

B65D 85/38

B32B 27/00

B65D 85/00

(21)Application number : 03-289639

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(22)Date of filing : 06.11.1991

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(30)Priority

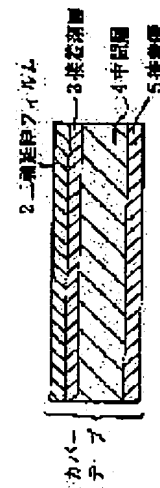
Priority number : 03117090 Priority date : 28.02.1991 Priority country : JP

(54) COVER TAPE FOR PACKAGING CHIP TYPE ELECTRONIC COMPONENT

(57)Abstract:

PURPOSE: To prevent the occurrence of static electricity upon peeling off of tape by a method wherein a cover tape heat sealable to the carrier tape containing chip type electronic component is formed by laminating together an outer layer constituted of biaxially stretched film and an intermediate layer constituted of olefin film via a specific adhesive agent layer.

CONSTITUTION: In a cover tape 1 heat sealable to the plastic made carrier tape having pockets formed therein successively to receive chip type electronic components, the outer layer 2 is constituted of biaxially stretched film made of any one of polyester, polypropylene and nylon, the intermediate layer 4 is formed of the olefin film strippable due to the cohesive failure of the intermediate layer itself when the cover tape is peeled off from the carrier tape and adhesive agent layer 3 adapted to attach the outer layer 2 to the intermediate layer 4 is formed by using the dispersed conductive powder consisting of a combination of thermoplastic resin with one or more of tin oxide, zinc oxide, titanium oxide, carbon black and Si organic compound.



LEGAL STATUS

[Date of request for examination] 29.10.1993

[Date of sending the examiner's decision of rejection] 04.06.1996

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 2609779

[Date of registration] 13.02.1997

[Number of appeal against examiner's decision of] 08-10484

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CLAIMS

[Claim(s)]

[Claim 1] It is the covering tape which can carry out the heat seal of the receipt pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. It is the biaxially oriented film whose outer layer is polyester, polypropylene, or nylon. When the middle class exfoliates the covering tape by which the seal was carried out to the carrier tape, It is the olefin system film on which exfoliation is performed by the interlayer's itself cohesive failure. The covering tape for a chip mold electronic-parts package characterized by for a glue line making thermoplastics distribute the conductive impalpable powder which consists of either or these combination of tin oxide, a zinc oxide, titanium oxide, carbon black, and Si system organic compound, and growing into it.

[Claim 2] The covering tape for a chip mold electronic-parts package according to claim 1 on which the thermoplastics of a glue line changes combining polyurethane system resin, acrylic resin, polyvinyl chloride system resin, ethylene vinyl acetate system resin, polyester system resin, or these.

[Claim 3] The covering tape for a chip mold electronic-parts package according to claim 1 or 2 whose surface-electrical-resistance values of a glue line the addition of conductive impalpable powder is the 10 - 1000 weight section to the thermoplastics 100 weight section of a glue line, and are below 1013ohms / **.

[Claim 4] the middle class -- 0.91 - 0.93 g/cm³ up to -- covering tape for a chip mold electronic-parts package according to claim 1 which is the olefin system film which consists of at least one ethylene polymer to 55 - 95 % of the weight chosen from the ethylene vinyl acetate copolymer containing the polyethylene and at most 10% of the weight of the vinyl acetate which have a consistency, the polystyrene to 5 - 30 % of the weight and styrene butadiene styrene of the shape of thermoplastic elastomer to 0 - 20 % of the weight, or a styrene isoprene styrene copolymer.

[Claim 5] The covering tape for a chip mold electronic-parts package according to claim 1, 2, 3, or 4 with the larger adhesive strength of the glue line of a covering tape, and the sealing surface of a carrier tape than the cohesive force of the middle class of a covering tape.

[Claim 6] The covering tape for a chip mold electronic-parts package according to claim 5 whose cohesive force of the middle class of a covering tape is 10-120gr per seal width of face of 1mm.

[Claim 7] Claims 1, 2, 3, 4, and 5 whose visible-ray transmission of a covering tape is 10% or more, or the covering tape for a chip mold electronic-parts package given in 6 terms.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention protects chip mold electronic parts from contamination, on the occasion of storage of chip mold electronic parts, transportation, and wearing, since it mounts in an electronic-circuitry substrate, it is aligned, and it relates to the covering tape by which a heat seal may be carried out to the carrier tape made from plastics which formed the receipt pocket among the package objects which have the function which can be taken out.

[0002]

[Description of the Prior Art] In recent years, chip mold electronic parts for surface mounts, such as transistors including IC, diode, a capacitor, and a piezoelectric-device register, are packed and supplied to the package object which consists of a covering tape which can carry out the heat seal of the pocket which can be contained, and by which embossing shaping was carried out to the carrier tape made from plastics formed continuously, and a carrier tape according to the configuration of electronic parts. After the electronic parts of contents exfoliate the covering tape of this package object, they are taken out automatically and the surface mount is carried out to the electronic-circuitry substrate.

[0003] Although the reinforcement at the time of a covering tape exfoliating from a carrier tape was called PIRUOFU reinforcement, when this reinforcement was too low, at the time of package object migration, the covering tape separated and there was a problem that the electronic parts which are contents were omitted. On the contrary, when too strong, the phenomenon which jumps out of a receipt pocket just before a carrier tape vibrates and being equipped with electronic parts, in case a covering tape is exfoliated, i.e., a jumping trouble, was caused.

[0004] Conventionally, although a polyvinyl chloride (PVC) or polystyrol with the quality of the material easy sheet forming used for a carrier tape, polyester (PET), the polycarbonate, and the acrylic sheet were used, generally the complex film which laminated the polyethylene denaturation or the ethylene-vinyl acetate copolymer (EVA) denaturation film which makes a heat seal possible on biaxial-stretching polyester film, PVC, or a styrol system sheet was used for the covering tape by which a heat seal is carried out to a carrier tape. However, the covering tape of these former had large condition dependencies, such as seal temperature of PIRUOFU reinforcement, and a seal pressure, and it was difficult for it to control by the variation in seal conditions in the fitness PIRUOFU range on the strength of as stated above.

[0005] These covering tapes have two kinds, an interfacial-peeling type and a condensation exfoliation type, according to the exfoliation device. In an interfacial-peeling type case, it is difficult for a sealing surface and a stripped plane for it to be satisfied with coincidence of the two opposite properties of peelable [which is originally required of a covering tape for the same interface / "a little more than adhesion-peelable"]. It is difficult for PIRUOFU reinforcement to vary and to control in the fitness range of as stated above, in order to receive effect also in the surface condition that the seal of the carrier tape is carried out. Moreover, it was influenced of temperature and humidity also according to storage of a covering tape or the storage environment after a seal, and there was a case where PIRUOFU reinforcement rose or fell and it separated from the fitness range, with time. On the other hand, when a film which is indicated by JP,61-12936,B was used in the condensation exfoliation type case, the covering tape from which the PIRUOFU reinforcement from which the sealing surface and the stripped plane were separated is obtained according to the cohesive force of a glue line could be created, and the covering tape of this system showed the outstanding property stabilized also with time.

[0006] However, since the cohesive force of a glue line was not so strong, when a covering tape was kept in the condition of having been wound as a product and it was especially kept under elevated temperatures,

such as summer, troubles, such as a sharp fall of a poor lifting seal or transparency, had generated [the volume core part] a biaxially oriented film and blocking. Moreover, although it has reached by condensation exfoliation about ***** among "a little more than adhesion-peelable", in order for a glue line not to paste a carrier tape firmly about strong adhesion but to receive effect in the surface state and seal width of face of a sealing surface of a carrier tape greatly, it had still left the technical problem.

[0007] Moreover, while chip-ization of highly efficient [more] and miniaturized electronic parts progresses with the large improvement in a surface mount technology in recent years Electronic parts by vibration at the time of package object migration A carrier tape embossing internal surface, Or static electricity which contacts the inside front face of a covering tape and is generated by friction in that case, And the static electricity failure that electronic parts caused destruction and degradation by the spark of static electricity which generates a covering tape in case it exfoliates from a carrier tape was also generated, and the electrostatic measures to package objects, such as a carrier tape and a covering tape, were taken the problem of the utmost importance.

[0008] Conventionally, about electrostatic processing of a carrier tape, the carbon black to the quality of the material used scours, or it is performed by coating, and that with which are satisfied of the effectiveness was obtained. However, measures still sufficient about electrostatic processing of a covering tape are not taken, but coating of the antistatic agent to the outer layer of a covering tape or a conductive ingredient etc. is performed in the present condition. However, the treatment effect was not enough as protection of the electronic parts enclosed because of processing of a covering tape outside, and the effectiveness did not exist to static electricity especially generated by the inside front face of a covering tape, and contact of electronic parts.

[0009] Moreover, although it is possible to carry out by the scour lump by coating or the glue line of an antistatic agent about the electrostatic processing to a covering tape inside front face, i.e., a glue line The antistatic agent scoured to a glue line the bleeding on the front face of the inside of a covering tape In this case, *****, sufficient effectiveness -- the dependency over the temperature and humidity of the environment where seal nature becomes unstable, and the troubles of a poor seal occur frequently, an electrostatic effect also falls with time, or a package object is used, especially humidity is strong, and an electrostatic effect falls remarkably under low humidity called 10%RH -- profit -- ***** -- it cut.

[0010] On the other hand, about the scour lump by the glue line of a conductive ingredient, since the formation approach of a glue line was the lamination of an extruded film etc. conventionally, it was technically difficult, and since transparency fell remarkably, the use as a covering tape was difficult. Moreover, about coating, it was stabilized on the carrier tape, and since selection of the binder which can be pasted up was difficult and an original glue line was covered, it was not carried out.

[0011]

[Problem(s) to be Solved by the Invention] The measures against static electricity of a glue line are taken that this invention should solve the above problems. And the result which was going to obtain the seal condition dependency of PIRUOFU reinforcement, and the covering tape by which aging is small and seal nature was stabilized, and was studied wholeheartedly, When exfoliating the covering tape by which used the biaxially oriented film as an outer layer, and the seal was carried out to the carrier tape as the middle class between an outer layer and a glue line, The olefin system film on which exfoliation is performed by the interlayer's itself cohesive failure is used. Knowledge that the complex film which coated the thermoplastic adhesive of the heat-sealing lacquer type which distributed conductive impalpable powder as a glue line is transparent and can serve as a covering tape with a good property is acquired, and it comes to complete this invention.

[0012]

[Means for Solving the Problem] This invention is the covering tape which can carry out the heat seal of the pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. This covering tape An outer layer is a biaxially oriented film which is polyester, polypropylene, or nylon. the middle class between an outer layer and a glue line -- 0.91 - 0.93 g/cm³ up to -- at least one ethylene polymer to 55 - 95 % of the weight chosen from the ethylene-vinyl acetate copolymer containing the polyethylene and at most 10% of the weight of the vinyl acetate which have a consistency -- When exfoliating the covering tape by which consisted of the polystyrene [to 5 - 30 % of the weight] and thermoplastic-elastomer-like styrene-styrene-butadiene-rubber [to 0 - 20 % of the weight], or styrene-isoprene-styrene block copolymer, and the seal was carried out to the carrier tape, It is the olefin system film on which exfoliation is performed by the interlayer's itself cohesive failure. A glue line Polyurethane system resin, acrylic resin, polyvinyl chloride system resin, To the thermoplastics which consists of either or these

combination of ethylene vinyl acetate system resin and polyester system resin, tin oxide, It is the covering tape for a chip mold electronic-parts package characterized by distributing the conductive impalpable powder by either or these combination of a zinc oxide, titanium oxide, carbon black, and Si system organic compound, and changing.

[0013] The addition of conductive impalpable powder of the desirable mode of this invention is the covering tape for a chip mold electronic-parts package characterized by being the 10 - 1000 weight section, for the adhesive strength of the glue line of this covering tape and the sealing surface of this carrier tape being larger than the cohesive force of the middle class of this covering tape, for the cohesive force of the middle class of this covering tape being 10-120gr per seal width of face of 1mm, and the visible-ray transmission of this covering tape being 10% or more to the thermoplastics 100 weight section of a glue line.

[0014]

[Function] When drawing 1 explains the component of the covering tape 1 of this invention, an outer layer 2 is one biaxially oriented film of biaxial-stretching polyester film, a biaxial-stretching polypropylene film, and a biaxial-stretching nylon film, and is a rigid high film in the transparence whose thickness is 6-100 micrometers. In 6 micrometers or less, if rigidity is lost and 100 micrometers is exceeded, it will be too hard and a seal will become unstable. The side which touches the adhesives layer 3 of an outer layer 2 can perform surface treatment, such as corona treatment, plasma treatment, and sandblasting processing, if needed, and can raise the adhesion force to the adhesives layer 3. Moreover, a surface active agent, conductive powder, etc. may be coated with the purpose of electrostatic processing of the front face of an outer layer 2.

[0015] the middle class 4 -- 0.91 - 0.93 g/cm³ up to -- at least one ethylene polymer to 55 - 95 % of the weight chosen from the ethylene-vinyl acetate copolymer containing the polyethylene and at most 10% of the weight of the vinyl acetate which have a consistency -- When exfoliating the covering tape by which consisted of the polystyrene [to 5 - 30 % of the weight] and thermoplastic-elastomer-like styrene-styrene-butadiene-rubber [to 0 - 20 % of the weight], or styrene-isoprene-styrene block copolymer, and the seal was carried out to the carrier tape, It is the olefin system film on which exfoliation is performed by the interlayer's itself cohesive failure. In addition, the side which touches an interlayer's 4 glue line 5 in order to raise the adhesion force of an interlayer 4 and a glue line 5 may perform surface treatment, such as corona treatment, plasma treatment, and sandblasting processing, if needed.

[0016] A glue line 5 is a heat-sealing lacquer type thing of thermoplastics (for example, polyurethane system resin, acrylic resin, ethylene vinyl acetate system resin, polyvinyl chloride system resin, polyester system resin, etc.) which has transparency, and what has the property which can carry out a heat seal to the carrier tape 6 made from plastics of partner material with each simple substance or its combination is selected. Thereby, since condensation stratum disjunctum is covered with a heat-sealing glue line, the blocking by the side of the biaxially oriented film at the time of elevated-temperature storage is prevented, and its adhesion to a carrier tape also improves to coincidence.

[0017] And one conductive impalpable powder of tin oxide, a zinc oxide, titanium oxide, carbon black, and Si system organic compound is distributed by homogeneity in the glue line, below at least 1013ohms / ** are required for the surface-electrical-resistance value of the glue line after film production in that case, and it is 106 still more preferably. omega/**-109 The range of omega/** is good. If it becomes larger than 1013ohms / **, an electrostatic effect will get extremely bad and the target engine performance will not be obtained. Moreover, the addition is the 10 - 1000 weight section to the thermoplastics 100 weight section of a glue line by the above-mentioned surface-electrical-resistance property, and its 100 - 400 weight section is still more preferably good. Since an electrostatic effect will not be discovered if fewer than 10 weight sections, but the dispersibility to the thermoplastics of a glue line will get remarkably bad if [than the 1000 weight sections] more, and adhesion with an interlayer 4 and transparency fall sharply and become high [cost], productivity worsens.

[0018] Moreover, since there is an electrostatic effect semipermanently since the electrostatic processing ingredient itself has conductivity, effect does not do to seal nature, either, in order not to start bleeding etc., but the surface-electrical-resistance value of a glue line is adjusted to below 1013ohms / **, Even if electronic parts contact this covering tape 1 on the way of [conveyance], what enclosed electronic parts with this carrier tape 6 on this covering tape 1 Or in case this covering tape 1 is exfoliated and electronic parts are taken up, it does not generate but static electricity can protect electronic parts from the static electricity failure.

[0019] In addition, in order to raise an electrostatic effect further, an antistatic treatment layer or a conductive layer may be prepared in an outer layer side, i.e., the front rear face of a biaxially oriented film.

Moreover, about the formation approach of a heat-sealing mold glue line, although either the melting producing-film method or the solution producing-film method may be used, solution film production is preferably desirable from the point of the dispersibility of conductive impalpable powder. Moreover, 5 micrometers or less are desirable still more desirable, and the thickness of a glue line has good 2 micrometers or less. Thickness is difficult for creation on the process by the solution producing-film method in 5 micrometers or more.

[0020] In addition, both may be laminated through the adhesives layer of the lacquer mold which an isocyanate system, an imine system, etc. make carry out desiccation solidification hardening in order to raise the lamination reinforcement of an outer layer and an interlayer, and is used. [0021] Moreover, in the seal-Peel process of a covering tape, the seal of this covering tape 1 is first carried out to both the sides of this carrier tape 6 continuously the shape of a rail with the width of face around 1mm at one of the two (drawing 2). Next, if the adhesive strength of the glue line 5 of this covering tape 1 and the sealing surface of this carrier tape 6 is smaller than the middle class's 4 cohesive force in case this covering tape 1 is lengthened and removed from this carrier tape 6 at the time of Peel, PIRUOFU reinforcement will correspond with the glue line 5 of this covering tape 1, and the adhesive strength of the sealing surface of this carrier tape 6, and Peel will be performed by interfacial peeling which is the present most general exfoliation device. In this case, when the seal of the covering tape was strongly carried out on a carrier tape, Peel became difficult, and sufficient engine performance which is satisfied with coincidence of the opposite property of the powerful seal nature to the carrier tape originally required of a covering tape and the easy Peel nature at the time of exfoliation was not obtained as it will separate, if a seal is carried out weakly conversely.

[0022] On the other hand, if the adhesive strength of the glue line 5 of this covering tape 1 and the sealing surface of this carrier tape 6 is larger than the cohesive force of the interlayer 4 of this covering tape 1 like this invention Only the part 7 heat sealed among the produced glue line 5 and the interlayer 4 remains in a carrier tape from the inside of an interlayer's 4 layer (drawing 3). Peel is performed by the condensation exfoliation only whose part 7 by which the glue line 5 and the interlayer were heat sealed destroys the covering tape (drawing 4) after being lengthened and removed out of an interlayer's 4 layer.

[0023] That is, PIRUOFU reinforcement is a thing corresponding to an interlayer's 4 cohesive force, a seal / Peel side is completely separable, and while it can carry out to the carrier tape 6 firmly, the seal of this covering tape 1 can design Peel of this covering tape 1 so that it can carry out as easily as possible. That is, the stripped plane is designed in this covering tape 1, does not depend on the quality of the material of the carrier tape 6, but can set the interlayer's cohesive force as arbitration. Moreover, the seal Peel device which the sealing surface of this covering tape 1 was firmly made as for selection of the adhesives in which a seal is possible to this carrier tape 6, and was stabilized is acquired.

[0024] In this case, an olefin system film is selected so that the cohesive force of the interlayer 4 of this covering tape 1 may become ten to 70 gr still more preferably ten to 120 gr per seal width of face of 1mm. When the Peel reinforcement is lower than 10gr(s), at the time of package object migration, a covering tape separates and there is a problem that the electronic parts which are contents are omitted. On the contrary, if higher than 120gr, in case a covering tape is exfoliated, a carrier tape will vibrate, and the phenomenon which jumps out of a receipt pocket just before electronic-parts wearing is carried out, i.e., a jumping trouble, will be caused. According to the condensation exfoliation device of this invention, as compared with the conventional interfacial peeling, the dependency of seal conditions is more low, and aging of the PIRUOFU reinforcement by storage environment can obtain the engine performance made into few purposes.

[0025] Moreover, since it is constituted so that the visible-ray permeability of a covering tape may become 50% or more preferably 10% or more, the electronic parts of the interior enclosed with the carrier tape can check with viewing or a machine. When lower than 10%, the check of internal electronic parts is difficult.

[0026]

[Example] Although the example and the example of a comparison of this invention are shown below, this invention is not limited at all by these examples.

The <<examples 1, 2, 3, 4, and 5, the examples 1, 2, 3, and 4 of a comparison, and 5>> To the olefin film side of the lamination article of a biaxially oriented film and an olefin film, solution film production of the glue line which made the ethyl-acetate solvent carry out the dilution dissolution of the mixture of thermoplastics and conductive impalpable powder was carried out by the gravure coating machine at 2 micrometers of thickness, and the covering tape of lamination shown in Table 1 and 2 was obtained. It is 5.5mm about the obtained covering tape. It heat sealed after the slit to width of face with the carrier tape made from PVC of 8mm width of face, and the Peel reinforcement was measured. Moreover, the surface-

electrical-resistance value by the side of a glue line and the visible-ray permeability of a covering tape prototype were measured, and the characterization result was shown in Table 3 and 4.

[0027] The <<examples 6, 7, 8, and 9 and 10>> It is the conductive impalpable powder SnO₂ of a glue line among examples 1. Except having changed the addition as follows, the sample was created by the same approach as an example 1, and the property was evaluated similarly. The result was shown in Table 5.

(It is the addition of SnO₂ to the vinyl chloride system resin 100 weight section)

Example 6: 20 weight sections examples 7: 50 weight section example 8:500 weight section example 9:750 weight section example 10:900 weight section [0028]

[Table 1]

表 1

		実施例 1	実施例 2	実施例 3	実施例 4	実施例 5
外 層		二軸延伸PET	二軸延伸NY	二軸延伸PP	二軸延伸PET	二軸延伸NY
中 間 層	密度(g/cm ³)	0.923	0.915	0.927	0.925	0.912
	ポリエチレン	65	80	90	70	55
	ポリスチレン	20	12	7	20	30
	スチレン-ブタジエン-スチレン	15	8	3		
接 着 層	スチレン-イソブレン-スチレン				10	15
	熱可塑性樹脂	PVC系	EVA系	PET系	アクリル系	ポリウレタン系
着 層	導電性微粉末	SnO ₂	TiO ₂	ZnO ₂	カーボンブラック	エチルシリケート
		150	250	100	350	120

[0029]

[Table 2]

表 2

		比較例 1	比較例 2	比較例 3	比較例 4	比較例 5
外 層		二軸延伸PET	二軸延伸NY	二軸延伸PET	二軸延伸PP	二軸延伸PET
中 間 層	密度(g/cm ³)	0.925	0.975	—	—	0.915
	ポリエチレン	40	75			70
	ポリスチレン	35	15	—	—	20
	スチレン-ブタジエン-スチレン		10			
接 着 層	スチレン-イソブレン-スチレン	25		—	—	10
	熱可塑性樹脂	PVC系	アクリル系	PET系	EVA系	—
着 層	導電性微粉末	SnO ₂	ZnO ₂	界面活性剤	—	—
		1100	6	1		

注； PET：ポリエチレンテレフタレート、 PP：ポリプロピレン、 NY：ナイロン、

EVA：エチレンビニルアセテート共重合体、 PVC：ポリ塩化ビニル

SnO₂：酸化錫、 TiO₂：酸化チタン、 ZnO₂：酸化亜鉛

層厚みは、外層12μm；中間層 50μm；接着層 2μm

中間層の各三成分の数字は、中間層成分全体100重量部に対する各成分の占める部数。

導電性微粉末の数字は接着層の熱可塑性樹脂100重量部に対する添加量。

[0030]

[Table 3]

表 3

			実施例 1	実施例 2	実施例 3	実施例 4	実施例 5
ピール強度	初期値		5 5	5 0	4 0	5 4	6 0
	40℃-90%		5 6	4 5	3 0	5 0	5 0
	30日						
	60℃	巻 外	6 0	5 3	4 2	6 0	6 5
	30日	巻 芯	5 8	5 2	4 5	6 2	6 0
ブロッキング			なし	なし	なし	なし	なし
全光線透過率(%) (巻心部)			82.0	72.2	85.2	69.5	81.5
剥離方式			凝集剥離	凝集剥離	凝集剥離	凝集剥離	凝集剥離
接着層表面抵抗値 (Ω/□)			1 0 ⁷	1 0 ⁸	1 0 ⁹	1 0 ⁹	1 0 ⁸
全光線透過率(%)			85.0	71.5	85.2	69.7	81.2

[0031]

[Table 4]

表 4

			比較例 1	比較例 2	比較例 3	比較例 4	比較例 5
ピール強度	初期値		4 0	5 0	3 0	8 0	5 5
	40℃-90% 30日		2 5	5 2	1 5	1 3	5 4
	60℃ 30日	巻 外	4 5	5 8	テープ切断	1 7 5	5 8
		巻 芯	4 6	5 6	テープ切断	1 6 8	1 3
	ブロッキング		なし	なし	なし	あり	あり
全光線透過率(%) (巻心部)			25.0	85.0	86.4	78.0	40.8
剥離方式			凝集剥離	凝集剥離	界面剥離	界面剥離	凝集剥離
接着層表面抵抗値 (Ω/□)			1 0 ⁸	1 0 ¹⁴	1 0 ¹⁸	1 0 ¹⁵	1 0 ¹⁵
全光線透過率(%)			27.3	85.3	86.6	83.5	84.3

注 ; ヒートシール条件 : 140℃ / 1 kg / cm² / 1 sec, シール幅 1mm × 2ヶ所
 ピール条件 : 180° ピール, ピールスピード 300mm / min, n = 3

[0032]

[Table 5]

表 5

			実施例 6	実施例 7	実施例 8	実施例 9	実施例 10
ピ ー ル 強 度	初期値		5 3	5 5	5 3	5 0	4 8
	40℃-90%		5 5	5 5	4 9	4 7	4 5
	30日						
	60℃	巻 外	5 6	5 9	5 7	5 3	4 8
	30日	巻 芯	5 5	5 7	5 7	5 0	4 7
ブロッキング			なし	なし	なし	なし	なし
全光線透過率(%) (巻心部)			84.5	84.2	75.3	70.0	65.2
剥離方式			凝集剥離	凝集剥離	凝集剥離	凝集剥離	凝集剥離
接着層表面抵抗値 (Ω/□)			1 0 ⁹	1 0 ⁹	1 0 ⁷	1 0 ⁸	1 0 ⁶
全光線透過率(%)			85.5	85.2	77.1	70.5	65.5

[0033]

[Effect of the Invention] As for this invention, electrostatic processing of the glue line is carried out. Contact on electronic parts and a covering tape Or static electricity generated at the time of exfoliation of a covering tape is stopped. With the combination of the point that the electrostatic effect is stable also to an operating environment or aging, and does not affect seal nature, either, an interlayer's cohesive force, and the adhesive strength to the carrier tape of a glue line Since the point that PIRUOFU reinforcement can be set as arbitration in the range of 10-120gr per mm, and PIRUOFU reinforcement are determined by the cohesive force of the interlayer in a covering tape, By three of the point of not receiving effect in seal conditions with a carrier tape Contact on the electronic parts and the covering tape which are the conventional trouble, or the problem of static electricity generated at the time of exfoliation of a covering tape, The problem that the dependency over the seal conditions of PIRUOFU reinforcement is large, and the problem which changes with storage environment with time can be solved, and the stable PIRUOFU reinforcement can be obtained.

[Translation done.]

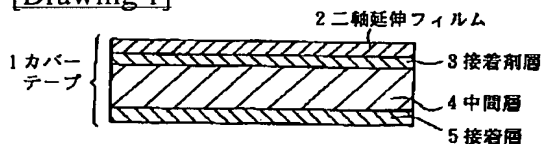
* NOTICES *

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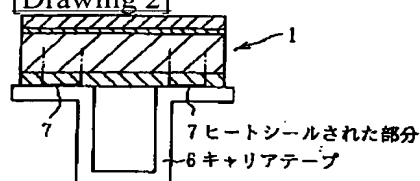
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

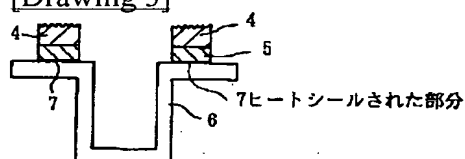
[Drawing 1]



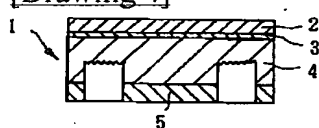
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]